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## Comparison of circuit training, circuit weight training with and without amino acids on body weight of Annamalai university students

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### Abstract

The purpose of the study is to find out the effects of circuit training and circuit weight training with and without amino acid on body weight Sixty (N=60) College Annamalai University, India were randomly selected as subjects. Subjects selected were randomly assigned into four groups of fifteen each (n=15). Group-I underwent Circuit Training with supplementation of amino acid, Group-II underwent Circuit Training without supplementation of amino acid, Group-III underwent Circuit weight training with supplementation of amino acid and Group-IV underwent Circuit weight training without supplementation of amino acid for duration of twelve weeks for three days a week. The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, the Scheffe's test was applied as post-hoc test to determine the paired mean differences. It may be concluded that the Circuit weight training with supplementation of amino acid (placebo) group is better than the other experimental groups in improving Body weight.

**Keywords:** Circuit weight training with and with out supplementation of amino acid, circuit weight, and, body weight

### Introduction

Circuit training is a method of physical conditioning that employs both apparatus resistance training and calisthenics' conditioning exercises. It provides a means of achieving optional fitness in a systemized controlled fashion. The intensity and vigour of circuit training are indeed challenging and enjoyable to the performer. The system produces positive changes in motor performance, general fitness, muscular power, endurance and speed

Circuit training is resistance training or weight training that maximizes the volume of work done in a short period of time. Circuit training is a great tool to use for people who are interested in weight loss, muscle gain and overall strength increase.

Amino acid supplements have gained favour with athletes as a means of increasing their body's ability to develop and maintain skeletal muscle. Amino acid is one of the three essential components of the human diet, along with carbohydrates and fats. Amino acid, which is composed of various types of amino acids, provides the raw material for muscle construction and repair. It also plays an important role in the immune system, the endocrine (hormone production) system, and the transmission of nerve impulses throughout the nervous system as well. A supplement is any addition to an athlete's regular diet to achieve a particular nutritional goal; a supplement may be a natural or a synthetic product. Supplements are available in fluid, powder, and solid food formulations.

### Methodology

The purpose of the study is to find out the effects of circuit training and circuit weight training with and without amino acid on Body weight Sixty (N=60) College Annamalai University, India were randomly selected as subjects. Subjects selected were randomly assigned into four groups of fifteen each (n=15). Group-I underwent Circuit Training with supplementation of amino acid, Group-II underwent Circuit Training without supplementation of amino acid, Group-III underwent Circuit weight training with

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supplementation of amino acid and Group-IV underwent Circuit weight training without supplementation of amino acid for duration of twelve weeks for three days a week. The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, the Scheffe's test was applied as post-hoc test to determine the paired mean differences.

**Result**

**Body Weight**

The analysis of dependent 't'-test on the data obtained for Body weight of the subjects in the Pre-test and Post-test of experimental groups and control group has been presented in Table I.

**Table I:** The Summary of Mean and Dependent 'T' Test for the Pre and Post-tests on Body Weight of Experimental Groups

Mean	Circuit Training with supplementation of amino acid Group – (I)	Circuit Training without supplementation of amino acid Group – (II)	Circuit weight Training with supplementation of amino acid Group – (III)	Circuit weight training without supplementation of amino acid Group – (IV)
Pre- test mean	58.27	59.13	58.53	59.27
Post-test mean	54.67	56.07	53.67	55.33
't'-test	2.24*	2.99*	4.72*	3.66*

\* Significant at. 05 level.

(Table value required for significance at. 05 level for 't'-test with df 14 is 2.15)

From table I it is learnt that the dependent 't' test values between the pre and post-test means of Circuit Training with supplementation of amino acid (placebo), Circuit Training without supplementation of amino acid, Circuit weight training with supplementation of amino acid (placebo) and Circuit weight training without supplementation of amino acid are 2.24, 2.99, 4.72 and 3.66 respectively. Since the obtained 't'-test value of experimental groups is greater than the table value 2.15 with df 14 at. 05 level of confidence, it is

concluded that Circuit Training with supplementation of amino acid (placebo), Circuit Training without supplementation of amino acid, Circuit weight training with supplementation of amino acid (placebo) and Circuit weight training without supplementation of amino acid have registered significant improvement in performance of Body weight.

The Analysis of covariance (ANCOVA) on Body weight of experimental groups has been presented in Table -II.

**Table II:** Values of Analysis of Covariance for Experimental Groups on Body Weight

Adjusted Post-test Means				Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
Circuit Training with supplementation of amino acid Group – (I)	Circuit Training without supplementation of amino acid Group – (II)	Circuit weight Training with supplementation of amino acid Group – (III)	Circuit weight training without supplementation of amino acid Group – (IV)					
55.22	55.72	53.94	54.85	Between	25.32	3	8.44	9.99*
				With in	46.49	55	0.85	

\* Significant at.05 level of confidence

(Body weight Scores in Kilogram)

(The table value required for Significance at. 05 level with df 3 and 55 is 2.77)

Table III shows that the adjusted post-test mean value of Body weight for Circuit Training with supplementation of amino acid (placebo), Circuit Training without supplementation of amino acid, Circuit weight training with supplementation of amino acid (placebo) and Circuit weight training without supplementation of amino acid are 55.22, 55.72, 53.94 and 54.85 respectively. The obtained F-ratio of 9.99 for the adjusted post-test mean is more than the table

value of 2.77 for df 3 and 55 required for significance at. 05 level of confidence.

The results of the study indicate that there are significant differences among the adjusted post-test means of experimental groups on the increase of Body weight.

To determine which of the paired means has a significant difference, Scheffe's test has been applied as Post hoc test and the results are presented in Table III

**Table III:** The Scheffe's Test for the Differences between the Adjusted Post-tests Paired Means on Body Weight

Adjusted Post-test Means				Mean Difference	Confidence Interval
Circuit Training with supplementation of amino acid Group – (I)	Circuit Training without supplementation of amino acid Group – (II)	Circuit weight Training with supplementation of amino acid Group – (III)	Circuit weight training without supplementation of amino acid Group – (IV)		
55.22	55.72	--	--	0.50	0.96
55.22	--	53.94	--	1.28*	0.96
55.22	--	--	54.85	0.37	0.96
--	55.72	53.94	--	1.78*	0.96
--	55.72	--	54.85	0.87	0.96
--	--	53.94	54.85	0.91	0.96

\* Significant at.05 level of confidence

Table III shows that the adjusted post-test mean differences on Circuit Training with supplementation of amino acid (placebo) group and Circuit weight training with supplementation of amino acid (placebo) group, Circuit Training without supplementation of amino acid group and Circuit weight training with supplementation of amino acid (placebo) group are 1.28 and 1.78 respectively and they are greater than the confidence interval value 0.96, which shows significant differences at .05 level of confidence.

The differences between Circuit Training with supplementation of amino acid (placebo) group and Circuit Training without supplementation of amino acid group, Circuit Training with supplementation of amino acid (placebo) group and Circuit weight training without supplementation of amino acid group, Circuit Training without supplementation of amino acid group and Circuit weight training without supplementation of amino acid group, Circuit weight training with supplementation of amino acid (placebo) group and Circuit weight training without supplementation of amino acid (placebo) group are 0.50, 0.37, 0.87 and 0.91. The value is less than the confidence interval 0.96, which shows insignificant difference at 0.5 level of confidence.

The results of the study further have revealed that there is a significant difference in Body weight between the adjusted post-test means of Circuit Training with supplementation of

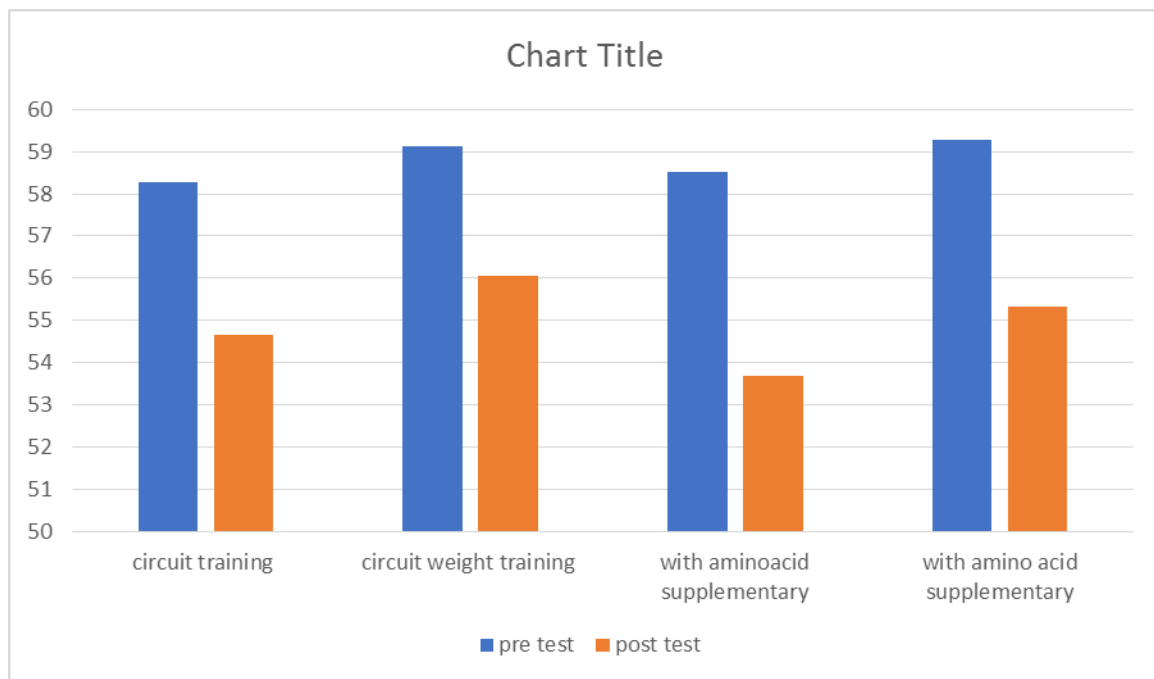
amino acid (placebo) group and Circuit weight training with supplementation of amino acid (placebo) group, Circuit Training without supplementation of amino acid group and Circuit weight training with supplementation of amino acid (placebo) group.

The differences between Circuit Training with supplementation of amino acid (placebo) group and Circuit Training without supplementation of amino acid group, Circuit Training with supplementation of amino acid (placebo) group and Circuit weight training without supplementation of amino acid group, Circuit Training without supplementation of amino acid group and Circuit weight training without supplementation of amino acid group, Circuit weight training with supplementation of amino acid (placebo) group and Circuit weight training without supplementation of amino acid (placebo) group have showed insignificant differences.

However, the improvement in Body weight is significantly higher for Circuit weight training with supplementation of amino acid (placebo) group than other Experimental groups.

It may be concluded that the Circuit weight training with supplementation of amino acid (placebo) group is better than the other experimental groups in improving Body weight.

The mean values of experimental groups on Body weight are graphically represented in the Figure I.



### Conclusion

It may be concluded that the Circuit weight training with supplementation of amino acid (placebo) group is better than the other experimental groups in improving Body weight.

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